WHAT IS CLAIMED IS:

1. An apparatus for flow testing of gas through an arc-shaped component, comprising:

a test bench including a source of flowing gas and a housing defining a plenum chamber and an aperture for flowing of the gas into the component, said housing being adapted and configured to mount the component proximate to the aperture; and

a measurement section located downstream of and proximate to the aperture, said measurement section including an arc-shaped inner flowpath and an arc-shaped outer flowpath for receiving therebetween the gas exiting the component, said measurement section including a measurement device between the inner flowpath and the outer flowpath, said measurement device providing a signal in response to the flow of gas proximate thereto, said measurement device being rotatable about the centerline of the arc of the component.

2. The apparatus of claim 1 wherein said measurement section includes a platform with a plurality of measurement devices each located between the inner flowpath and the outer flowpath, said platform being rotatable about the centerline.

3. The apparatus of claim 1 wherein said measurement section includes a plurality of measurement devices, each measurement device has a length in the radial direction between the inner flowpath and the outer flowpath, and each length is different.

4. The apparatus of claim 3 wherein each measurement device includes a sensor, and the sensor is one of a strain gage, pressure transducer, accelerometer, anemometer including a wire, or piezoresistive element.

5. The apparatus of claim 1 wherein said apparatus includes as the component an arc-shaped vane for a gas turbine engine.

6. The apparatus of claim 5 wherein said measurement device includes a sensor for measuring the angular position of said measurement device relative to the component.

7. The apparatus of claim 1 which further comprises a sensor producing a signal corresponding to the torque imparted by the airflow onto said measurement device.

8. An apparatus for flow testing of gas through a component, comprising:

a test bench including a source of flowing gas and a housing defining a plenum chamber and an aperture for flowing of the gas into the component, said housing being adapted and configured to mount the component proximate to the aperture; and

a measurement section located downstream of and proximate to the aperture, said measurement section including an inner flowpath and an outer flowpath for receiving therebetween the gas exiting the component, said measurement section including at least two circumferentially spaced-apart measurement devices each located between the inner flowpath and the outer flowpath, each said measurement device providing a signal in response to the flow

of gas proximate thereto, each measurement device having a length in the radial direction between the inner flowpath and the outer flowpath, and each length being different.

9. The apparatus of claim 8 wherein each said measurement device is in the shape of an airfoil.

10. The apparatus of claim 8 wherein each said measurement device is in the shape of a plate.

11. The apparatus of claim 8 wherein each said measurement device is in the shape of a rod.

12. An apparatus for flow testing of gas through a component, comprising:

a test bench including a source of flowing gas and a housing defining a plenum chamber and an aperture for flowing of the gas into the component, said housing being adapted and configured to mount the component proximate to the aperture; and

means for simultaneously measuring properties of the gas exiting from the component at a plurality of radial locations and a plurality of circumferential locations, said measuring means being rotatable transverse to the flowpath of the component.

13. The apparatus of claim 12 wherein said measuring means includes a plurality of devices each adapted and configured to bend in response to the gas flowing out of the component and around the device.

14. A method for evaluating a gas flow characteristic of a gas path component for a gas turbine engine, comprising:

providing a source of gas, a chamber including a support member for supporting the component, and a measurement section located downstream of the component and having therein at least one flow-responsive measurement device;

mounting the component with the support member;

placing the measurement device at a first location downstream of the component;

directing a flow of the gas from the source into the chamber and through the component;

flowing the gas exiting the component proximate to the measurement device;

making a first measurement of a property of the gas with the measurement device placed at the first location;

moving the measurement device to a second location downstream of the component;

directing a flow of the gas from the source into the chamber and through the component;

flowing the gas exiting the component proximate to the measurement device;

making a second measurement of a property of the gas with the measurement device placed at the second location;

15. The method of claim 14 wherein the measurement device is movable along an arc, and said moving is by rotating the measurement device through a portion of the arc.

16. A method for evaluating a gas flow characteristic of a gas path component for a gas turbine engine, comprising:

providing a source of gas and a chamber including a support member for supporting the component;

mounting the component in a first flow direction to the support member;

directing a flow of the gas from the source through the chamber and into the component;

making a first measurement of a property of the gas with the component mounted in the first flow direction;

mounting the component in a second flow direction to the support member, the second flow direction being opposite of the first direction;

directing a flow of the gas from the source through the chamber and into the component; and

making a second measurement of a property of the gas with the component mounted in the second flow direction.

17. The method of claim 16 which further comprises calculating a first characteristic of the component from said making a first measurement and calculating a second characteristic of the component from said making a second measurement.

18. The method of claim 17 which further comprises comparing the first characteristic to the second characteristic and determining whether or not the component is acceptable.